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ABSTRACT

This manual provides information and suggestions on training the increasingly older work force. An introduction addresses a needed emphasis on training programs to retain older workers as employees and development of effective training that focuses on needs and limitations of older adults as learners. It introduces McDonald's McMaster's Program, which aims to employ individuals over age 55. The following section discusses myths surrounding older workers: (1) older workers are less productive; (2) older workers cost more to train; (3) older workers raise the cost of benefits; (4) there is an older/younger worker conflict; (5) older workers prefer to not work; (6) older workers are absent more; (7) older workers have more accidents on the job; (8) older workers leave the job; (9) older workers do not want to be trained; and (10) older workers lack basic skills. The third section focuses on reasons for the low self-esteem of older workers. The fourth section discusses required skills for a trainer and other topics of interest to trainers: design of learning contracts, time requirements and constraints, print size of materials used by older workers, and the learning environment. The last three sections describe limitations of aging employees: vision, hearing, and physical limitations. Contains 16 references. (YLB)

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TRAINING AN AGING WORK FORCE

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BY
Annamary Zappia Allen

TRAINING AN AGING WORK FORCE

by

Annamary Zappia Allen

About the Author:

Annamary is a candidate for a doctoral degree in Adult Education and a Certificate of Achievement in Gerontology from Syracuse University, Syracuse, New York. Her hope is to dispell myths about aging for those who are growing old, and to soothe the fears the young have about growing old.

This manual is dedicated to Anna and Carol in appreciation for their input and for a wonderful work experience. You were the inspiration behind these words. A thank you goes to Clyde for the cooperation provided by his McDonald's staff.

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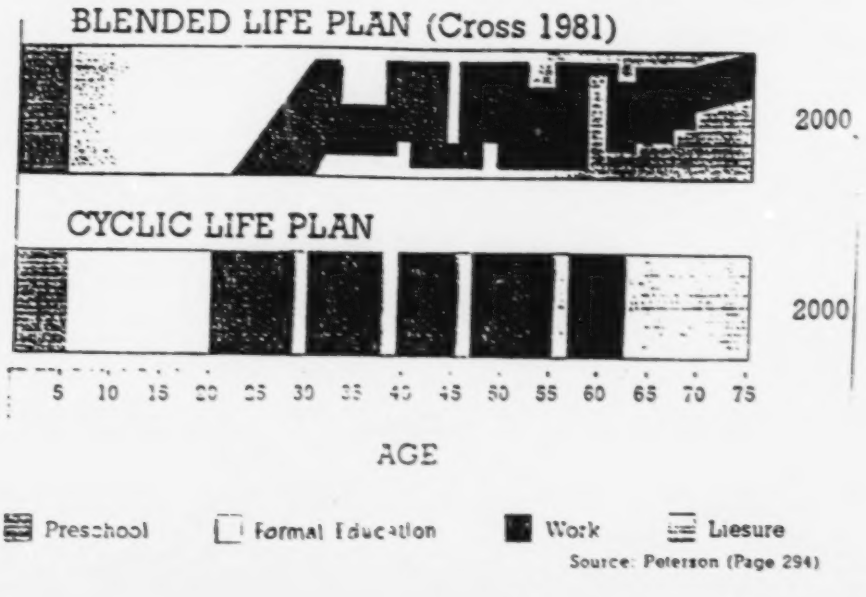
TRAINING AN AGING WORK FORCE: OVERCOMING MYTHS

Due to economic and demographic changes in our country, we as trainers, are challenged to develop training programs which will utilize the capabilities of our increasingly older work force. Predicted population changes in the twenty-first century show life expectancy on the rise and a decline in numbers of traditional aged prospective employees entering the work force. Society no longer considers a life cycle of education, work, then retirement (leisure) the norm for an individual's life span; but rather accepts lifelong learning, working, and resting when necessary, thus forming the Cross "Blended Life Plan."



Source: Peterson (Page 294)

The work force of the year 2000 will consist of middle aged workers who both want and need to continue to work in some capacity. Financial resources dictate some workers' need to work to maintain their status as single family supporters. Another sector comprises those workers who, due to corporate restructuring, are over fifty years of age and are now reentering the work place. The United States Department of Labor defines an older worker as old at age 45, while the United States Congress states age discrimination is applicable at age 40. It is predicted by the year 2000, the sixty-five plus age group will increase its population size by 28 million, and the eighteen to thirty year old group, which pays heavily into social security retirement benefits, will decrease its population size by 8 million. Morrison (1983) also predicted the middle-age to older-age work force will represent 49 percent of the work force of the United States. Dr. Ken Dychtwald (Age Wage, 1991)

predictes by the year 2010 one in every four individuals in the United States will be over age fifty-five.

An emphasis on training programs to retain these older workers as employees must continue. Matilda Riley, an 81 year old Senior Social Scientist at the National Institute on Aging, is quoted as saying, "A structural revolution is needed to provide meaningful roles for the large, generally healthy older population with nowhere to go" (McLeod, 12). Riley also reasons older workers are free to do their "main life's work" because they are free of family rearing responsibilities at this time in their lives.

Recruiting, hiring, and training new employees is an expensive process. "The administrative cost of a turnover--a new graduate leaving after eleven months in a management education program--is $58,264" according to a study by Vyaj Sathe.

To accomplish the goal of retaining workers, organizations need to develop effective retraining programs to enhance employee understanding of new high technological machines and computer-related information systems. Obsolete equipment and obsolete employees are costly to organizations, and the result of obsolete employees can be psychological costs from stress and low self-esteem.

Programs need to focus on the needs and limitations of older adults as learners. The role of adult educators/trainers is to convince organizations, other trainers, and the workers themselves that they can be retrained and to show them the best methods and techniques available. In 1989, only one in three companies (28 percent) had implemented a corporate plan to utilize older workers. Three in ten (29 percent) provided skill training for older workers (AARP, 1989).

Older workers prefer to work part-time. Riley feels it "allows people to practice their trades or professions as opportunity, family and circumstances make it timely" (p. 12). Organizations which prefer temporary, part-time or seasonal hiring to allow their business a flexible work schedule, would benefit from hiring an older worker. Older workers can be called on when business is booming and can adapt to periods of time when they are not employed.

According to population demographics, labor shortages occur as a young work force shrinks in size. Labor scarce regions find the need to rehire retirees on a part-time basis to supplement their work schedule. Ray Kroc, the founder of McDonalds, was 52 when he opened his first McDonald's Family Restaurant. The McDonald Corporation realizes that consumers want to feel comfortable in their environment. They want to feel they are dining among community members. Since population demographics show

an aging community population, McDonalds staffs their restaurants to reflect the consumers patronizing their business, especially at certain hours of service, such as breakfast.

McDonalds actively pursues the employment of the elderly through its McMaster's Program, which is marketed to employ individuals over age 55. The McMaster's Program has a featured selling point to elderly rehirement, allowing individuals an opportunity to earn money on a customized flexible schedule that will not jeopardize their social security benefits. The scale increases earning amounts so a worker aged 70 plus has no limits on earnings.

Myths

Listed below are the myths surrounding older workers which must be dispelled. This author (taking the AARP age definition for retirement into consideration) will refer to those over age 55 as older workers. Developing a successful training program begins with an understanding of:

1. Myths about the elderly as employees,
2. Reasons why older workers have low self-esteem,
3. Limitations of aging employees,
4. Organization's training needs

Based on this knowledge, appropriate training programs can be designed and evaluation tools created. Careful planning of training materials and methods will save organizations time and money and result in a high quality training program.

Myths of Training Older Workers

Myth One: Older Workers are Less Productive

Older workers can be trained to be as productive as younger workers. Older workers have a strong positive work ethic--a commitment to quality. The Commonwealth Fund published a study (May 1991) called "Case Studies at Major Corporations." It reported the turnover rate of young recruits at the Days Inn Corporation was nearly 100 percent. The Days Inn Corporation began hiring workers over age fifty. The position was titled "Reservation Agent" and required the same training and same skill levels for all employees. The older employees were trained on the corporate software at computer terminals, and they achieved the same skill levels in the same period of time as the young employees. Older workers have a lower turnover rate than young employees. Older worker turnovers are not usually due to a poor performance at the work place.

B & Q, a retail chain in Great Britain, created a target store with an older work force, which was more productive than comparison stores with a work force with an average age of 27. This target store with an older work force found the older employees willing to work overtime or on flexible shifts. In profit numbers, this store gained an 18 percent higher profit than the comparison stores and a 9 percent higher profit than the company-wide average. Peterson (1989) found that, "Overall, work productivity does not decrease with age, at least up to age 65" (p. 189).

Myth Two: Older Workers Cost More to Train

Older employees have a wealth of practical knowledge to draw from, as well as solid industrial experience. Consider the cost-benefit ratio of investing in new techniques to retrain employees in order to retain these employees as opposed to having employees become obsolescent. Travelers Corporation expanded its successful retiree job bank by recruiting qualified retirees from other local insurance companies who only needed to learn company policies and procedures.

Trainers may spend more time training older employees and will need patience and one-to-one training techniques. Physical limitations of an older employee may require more time to train the individual, thus raising the cost of training. Adapting training approaches which are already yielding the highest return on investment for your organization to include approaches successful to training

older workers might offset the additional training time required by some older workers. A reduced cost noticed at the B & Q retail store staffed by older workers was the cost saving in theft and pilferage by both employees and customers. B & Q managers attributed these savings in dollars to the hiring of older workers.

Myth Three: Older Workers Raise the Cost of Benefits

The attendance record of older workers is usually better than that of younger workers. Absenteeism is lower for older employees according to numerous studies, including the 1991 AARP study on an aging work force. Fringe benefits are not prorated according to age, with the exception of life insurance policies.

Many older workers are hired on a part-time basis, or as temporary employees, neither status being eligible for benefits. "Travelers (providers of financial services) has found that using its own retirees as temporary workers has saved money by eliminating the need to pay an outside agency, by lowering recruiting costs because retirees who are willing to continue working are easily identified before their retirement, and by saving on health benefit costs because retirees have their insurance paid through their pension plans" (McNaught & Barth, 2).

Another option to reducing the cost of benefits was found by B & Q. They have instituted a policy stating all employees must retire at age 60. "The company may offer further employment, but the employee must first retire, taking a two-week break, thus legally severing continuous service with the company and losing all the benefits of long service, before recommencing employment" (Hogarth & Barth, 11). Mandatory retirement age is considered illegal age discrimination in the United States.

A study completed in 1989 by McNaught, Barth, and Henderson found:

75%	of the available older workers have health insurance provided by another source
75%	are willing to accept a job without receiving additional coverage
72%	of those available to work who do not have insurance are willing to accept a job without receiving health insurance coverage (p. 468)

Myth Four: Older/Younger Worker Conflict

Most older workers provide younger workers with excellent role models. Coworkers find social problems with intergenerational staffs to be the same as those problems with their own age cohort. There are some employees who have a difficult time dealing with some individuals, but it is a negative stereotype to state that as we age, we become difficult to socialize with and are more difficult employees. A 1989 study of middle aged and older workers completed by the AARP states older workers are more stable emotionally and display coolness in a crisis. A cross-sectional age pattern displays a comparison of traits of individuals and shows a profound increase in social responsibility as we age (Willis, 1987). The author found it is not true that people become more rigid as they age. Gilsdorf (1992) states older employees are more satisfied with their jobs, salary, supervisors, and co-workers.

Myth Five: Older Workers Would Prefer to Not Work

Many older workers want to continue to work for both financial and social reasons. In 1983, changes in the Social Security Act increased the age to receive full benefits from 65 to age 67. The forecast is for the age to increase even higher.

Older employees, like other individuals, appreciate being needed and respected. Three common problems of older workers that may make them appear to prefer to not work are: a) career burnout, both emotional and physical exhaustion; b) career plateauing, which human resource management defines as an unpromotable individual; and c) career obsolescence, or an older worker with outdated skills.

Travelers Corporation retirees, 70 percent of whom are women, and whose average age is 67, work an average of 516 hours per year. Their assessment study is quoted as

finding the retirees ". . . better qualified and more motivated, reliable, and skilled" (McNaught & Barth, 10). B & Q's comparison store found excellent results from the older workers' job dedication.

Myth Six: Older Workers are Absent More

Elderly employees are typically present, punctual, (actually usually arriving early), loyal, dedicated, and counted on to put in extra hours in overtime to help when needed. Sheppard and Rix (1978) report older workers as having better working habits than younger employees, especially lower absenteeism. Peterson found "Eighty percent of the older population manage to live their lives with little or no restriction placed on their mobility by health conditions" (p. 188).

At B & Q, an absentee problem was overcome by hiring an older work force. Previous research on absentee patterns showed young workers absent on hot summer days, days when older workers preferred to work. B & Q states, "The statistical evidence demonstrates no relationship between older workers and higher levels of absenteeism, and the qualitative data would indicate that

older workers were less likely to be absent" (Hogarth & Barth, 14).

Myth Seven: Older Workers Have More Accidents on the Job

Older workers can appreciate their limitations and are more safety conscious than younger workers (Gilsdorf, 1992). Peterson quotes Sheppard, 1978, as finding older workers more likely to be injured while operating a machine (p. 189). Therefore, accidents occur when the elderly cannot make a quick, evasive movement. "They (older workers) are likely to select themselves out of areas where they feel uncomfortable or unsafe, and thus they avoid the situations where accidents are likely to occur. Tasks in which judgment and expecting the unexpected are important in accident prevention are ones in which the older workers are especially likely to be superior" (Peterson, 189).

Myth Eight: Older Workers Leave the Job

Older workers have a lower turnover rate than young individuals. "The odds are substantially better that a fifty year old will stay with the organization for the next fifteen years" (Thomas, 1985). The older workers at B & Q's store had the lowest labor turnover, and customers rated their staff as the friendliest. A study of retention at Days Inn found "After one year, for example, 87 percent of the older workers who completed training, as opposed to 30 percent of younger workers, were still at work" (McNaught & Barth, 56).

Myth Nine: Older Workers Do Not Want to be Trained

The highest percentage (68.4%) of courses taken by men age 55-64 is JOB RELATED. The next highest reason for taking a job-related course was to ADVANCE IN JOB at 60% (US Department of Education's Center for Educational Statistics). For women of the same age category, the highest percentage of courses taken was NOT JOB RELATED (51.2%), but followed by JOB RELATED at 47.9%. The reason listed by women was TO ADVANCE IN JOB (40.5%). The actual courses taken were, in order of preference for men: business, engineering and health care; for women, in order of preference: health care, business and arts.

Rix and Sheppard's study states, by age, the reason to participate in training to update a current skill shows participation of:

37% for 40-49 year olds

44% for 50-62 year olds

35% for 63 plus year olds

A 1986 AARP survey reports more than four out of five workers, age forty and older, would participate in training programs if offered the opportunity to participate. If trainers understand the needs and wants of the older learner and direct the content of the training toward those meaningful areas, the result will be greater motivation and greater learning (Peterson, 85).

Myth Ten: Older Workers Lack Basic Skills

Older workers need to develop their communication skills to assure trainers of the basic skills they possess. If individuals had problems with math at age twenty, they will still have problems with math at age fifty, but now these individuals are anxious because of a feeling that they lack the ability to solve a mathematical equation is associated with age. The trainer may have to "reduce the amount of content to be presented and to offer greater clarity, specificity, and depth, rather than cover a number of diverse topics" (Peterson, 81).

Older workers may have the necessary basic skills to solve a problem, but they first try old successful techniques and methods as a means to the answer. If these methods solved problems in the past successfully, they prefer to try the familiar before risking a new solution which may fail.

Older workers continue to develop their vocabulary as they age, but may not have developed their technical skills. Speed and agility may decrease with age. In a cross-sectional age pattern study, the results reported in T-scores, a decrease was shown in copying speed from age 25 with a T-score of 54.8 to age 53, with a T-score of 50, and then at age 60, with a T-score of 48.6 (Schaie & Willis, 1987). The T-scores decreased less dramatically after age 53 than between the ages of 25 and 53.

SELF ESTEEM

Older workers are aware of the ever-changing technology in the work place and of their lack of the necessary skills to compete for new jobs and promotions. "Many older workers think they must resstablish their worth" (Gillsdorf, 1991). These workers find it difficult to change negative stereotypes of the elderly.

Concerns of the elderly include questions like, "Will I be able to learn? Will I be able to memorize? Will it be a positive, successful learning experience for me? Is it worth the time and trouble to learn or acquire a new skill at this time in my life and at this time in my career? Will I be the oldest in the class? Will it really make a difference in my paycheck or in my title?"

CONCLUSION

Older workers are aware of the ever-changing technology in the work place and of their lack of development of the necessary skills to compete for new jobs and promotions. "Many older workers think they must reestablish their worth" (Gilsdorf, 1991). These workers find it difficult to change negative stereotypes of the elderly.

Trainers of an aging work force need to be supportive, sincere, kind and friendly. They might make an effort not to succumb to generational stereotypical cliches.

FOR THE TRAINERS

Trainers of an aging work force need to be supportive, sincere, kind and friendly. They might make an effort not to succumb to generational stereotypical cliches. Your role as a trainer may include determining what positions will need to be filled in your organization in the very near future and in the next five years. What skills will be needed to staff these positions? A trainer may need to assist older individuals with coping skills to combat the stress that accompanies role change. Once you match the needs of the corporation with the present staff, you can begin using performance appraisals as an information source for the career plans of employees. Performance appraisals can act as a tool to plan which employees will participate in training. Employees who do not match the needs of the corporate goal plan, or have different long-term goals, might be encouraged to develop a contingency plan with

management for their future. Employees who fall into the corporate plan, but may benefit from training outside the organization, might need encouragement to take training/education leaves.

LEARNING CONTRACTS

Trainees usually actively participate in the training plan designed for them. Personal objectives might be set through the use of a learning contract. A learning contract (Figure 1) is a written plan, designed and agreed upon by both the trainee and trainer, the goals of which follow:

OBJECTIVE The objective to be accomplished is set by both the trainee and trainer in the first column, "Learning Activities to be Completed."

METHOD The method to be used to accomplish the objective is set in the second column, "Strategy for Completion."

DATE The date by which the task will be accomplished and is set in the third column, "Target Date for Completion."

EVALUATION The method of evaluation upon completion of the task is set in the fourth column, "Final Evidence - Evaluation."

Learning contracts encourage individualized training and self-directed learning. Contracts establish trainee ownership in their training program and will save training time by allowing the trainee to use past experience in the method selection. Learning contracts are a motivational tool for participation, thus becoming a needs assessment and evaluation tool, encouraging the trainee to reflect and plan the best course to attain their goal. The trainer becomes a coach or facilitator to the trainee.

FIGURE 1 A LEARNING CONTRACT

NAME_____

LEARNING ACTIVITIES TO BE COMPLETED	STRATEGY FOR COMPLETION	TARGET DATE

FINAL EVIDENCE/EVALUATION

TIME

INTRODUCTION OF NEW MATERIALS

Trainers must allow adequate time for assimilation when introducing new procedures and materials to an older trainee. They must relate problems to past experiences and draw on practical experiences before introducing new information. Trainers might consider introducing new information in small portions, introducing only one item at a time, allowing extra time for review. When introducing new information, trainers need to provide a reference for the trainee to use at a future time, such as a written document, a video, or a cassette tape. Allowing the older workers to apply what they have learned also aids in retention. Older individuals need more time to feel comfortable with a new task before it becomes stored in their long-term memory (Peterson, 79).

RESTRAINTS

Another factor to be considered by trainers is time restraints on task completion. There is a decline in performance by older individuals when they are pressured to perform within time restraints.

"Older people learn more successfully when they are given additional time

both to take in the information (presentation rate) and to retrieve the answer (response rate). . . " (Peterson, 80)

When not given sufficient time, older persons make "errors of omission" or leave out answers or do not answer rather than making an error. Self paced instruction is usually preferred by older learners.

In John Tierney's article, "The Aging Body" (p. 15), he states:

The real slowdown happens because the brain takes longer to process information, make decisions, and dispatch signals. If a man looking at numbers flashing on a screen is told to press a button whenever he sees two consecutive even or odd numbers, this is how long it takes in time to react:

Age 30:	0.88 Seconds
Age 50:	0.90 Seconds
Age 60:	0.92 Seconds
Age 70:	0.95 Seconds

Older employees using or being trained to use a computer should be able to control the scrolling computer. The pace of moving

forward should be easily controlled by the user.

Trainers can keep older employees informed regarding innovations and trends. They need to encourage older workers to experience different positions, update their skills, and encourage job rotation or temporary assignments within the organization. Older workers can be assigned to new employees as mentors or utilized as trainers. Older workers can be assigned to special projects that utilize their skills, but may require limited training time to build their self confidence.

When job opportunities are posted listing required competencies, all workers should be given an equal opportunity to reassess their present skill competencies. Trainers provide technical, job-related journals and publications to older workers and encourage the discussion of techniques published. Organizations should actively support memberships of older workers in professional

organizations to encourage individuals to keep current and network within their field.

The Office of Technology Assessment in Washington, DC completed a report, "Worker Training: Competing in the New International Economy" and found, "The attitudes of management are the greatest hurdle older workers face when training or being considered for training for new technologies" (p. 252). Consideration of longer training time needs for the older worker would serve to reinforce management's commitment to retraining.

PRINT SIZE

Another factor trainers need to consider is the print size of materials utilized by older workers. A larger font size (14-18) is suggested on printed materials. This document is printed in font size 14, while Figure 2 is printed in font size 16.

FORMAT Materials introduced in either an outline form or through content mapping, provide a framework that is easily followed visually and lets the learner know in advance how much information you will be presenting during one session.

If this outline can be reproduced and a copy given to the learner as an agenda, it would be beneficial for the learner to follow throughout the training.

MEMORANDUM

FIGURE 2

DATE: October 13, 1992

TO: All Trainers

FROM: Annamary Zappia Allen

SUBJECT: PRINT SIZE

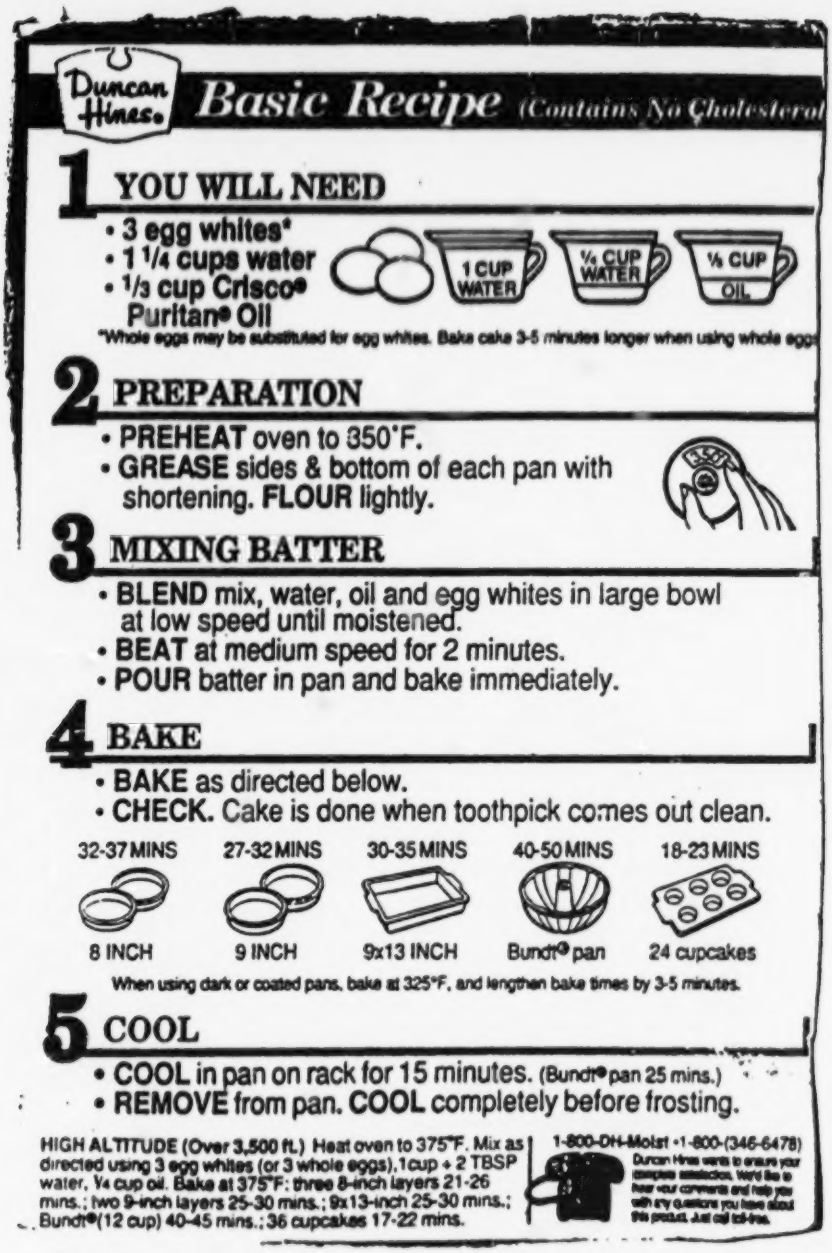
Since our employee work force is aging, we should try to adapt to their needs. It is a very simple procedure to have all manuals, materials, and correspondence typed with this larger print.

Notice how easy it is to see the paragraph notations. Readability studies find older readers prefer indented paragraphs. The block print not fancy italics, also make correspondence more readable.

ss

PHOTOS Many times "A picture is worth a thousand words" to an older trainee. Proctor & Gamble practices this old adage in the instructions provided on the back of their cake mixes. Figure 3 provides the older learner with very clear photos, large print size and bold faced, colored items for easier reading.

FIGURE 3


Duncan Hines
Basic Recipe (Contains No Cholesterol)
1 YOU WILL NEED
• 3 egg whites*
• 1 1/4 cups water
• 1/3 cup Crisco® Puritan® Oil
1 CUP WATER
1/4 CUP WATER
1/3 CUP OIL
*Whole eggs may be substituted for egg whites. Bake cake 3-5 minutes longer when using whole eggs
2 PREPARATION
• PREHEAT oven to 350°F.
• GREASE sides & bottom of each pan with shortening. FLOUR lightly.
3 MIXING BATTER
• BLEND mix, water, oil and egg whites in large bowl at low speed until moistened.
• BEAT at medium speed for 2 minutes.
• POUR batter in pan and bake immediately.
4 BAKE
• BAKE as directed below.
• CHECK. Cake is done when toothpick comes out clean.
32-37 MINS
27-32 MINS
30-35 MINS
40-50 MINS
18-23 MINS
8 INCH
9 INCH
9x13 INCH
Bundt® pan
24 cupcakes
When using dark or coated pans, bake at 325°F, and lengthen bake times by 3-5 minutes.
5 COOL
• COOL in pan on rack for 15 minutes. (Bundt® pan 25 mins.)
• REMOVE from pan. COOL completely before frosting.
HIGH ALTITUDE (Over 3,500 ft.) Heat oven to 375°F. Mix as directed using 3 egg whites (or 3 whole eggs), 1 cup + 2 TBSP water, 1/4 cup oil. Bake at 375°F: three 8-inch layers 21-26 mins.; two 9-inch layers 25-30 mins.; 9x13-inch 25-30 mins.; Bundt®(12 cup) 40-45 mins.; 36 cupcakes 17-22 mins.
1-800-DH-Moist • 1-800-(346-6478)
Duncan Hines wants to ensure your complete satisfaction. We'd like to hear your comments and help you with any questions you have about this product. Just call toll-free.

ENVIRONMENT

Distractions and environmental influences should be monitored and possibly adjusted. If older people are distracted by noise and room conditions such as heat, and are forced to divide their attention between learning a task and coping with the distraction, the result will be a decline in both the speed and accuracy of learning the task (Peterson, 79). Therefore, trainers need to make every effort to provide a comfortable environment.

SEATING It is suggested chairs be arranged in a U-shape or circle to equalize authority and suggest a non-threatening, informal setting. Room arrangements other than this, such as chairs arranged in rows, are called "socio-fugal" settings and discourage conversation between participants.

CHAIRS Many times the standard student chair is used in a learning environment. The result of not being able to fit into the chair, or having ample table space, can be a frustrated, distracted, learner. (Figures 4 & 5)

FIGURE 4

FIGURE 5

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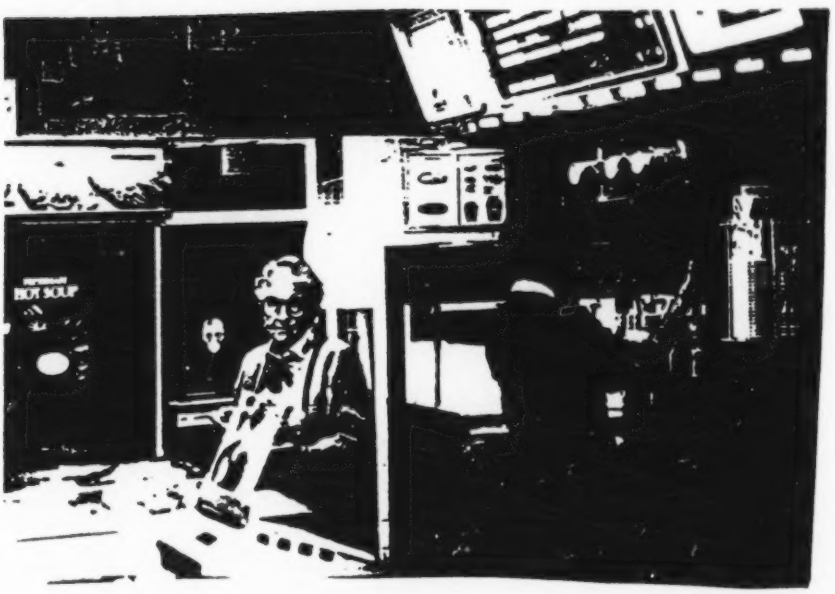
BEST COPY AVAILABLE

Rocking chairs with comfortable padded seats are preferred by some in a training setting. (Figure 6).

BREAKS A two-hour session with breaks is considered the maximum for many older individuals (Peterson, 103). Breaks are not only necessary to achieve a mental break, but also provide a physical break. Bathroom breaks are a definite necessity.

TEMPERATURE

The elderly prefer a warmer temperature, mid 70s are optimum. A temperature change can make an older audience very uncomfortable quickly. In situations where uniforms must be worn, a sweater should be allowed for the older worker. (Figure 7) By age 70, an individual's body temperature is lowered by two degrees (Tierney, p. 8).



VISION

LIGHT As we age, the size of our pupil decreases, letting in less light. Older people need more artificial light to see properly. "At age 80, a person needs about three times as much light to read as a teenager . . ." (Peterson, 94).

Older eyes need more time to recover from a change in light. Wait for this adjustment period when turning the lights in the room back on after showing a video or slides. Perhaps a subdued light can be left on during the presentation.

GLASSES Bifocal or reading glasses are common to aging individuals. (Figure 8) The most common eye sight problem is farsightedness, usually occurring about or after age 40. In addition to the loss of ability to see objects clearly, we lose the ability to focus on close objects. Presbyopia is a decline in the eye's ability to focus on close objects (Hiemstra & Sisco, 1990).

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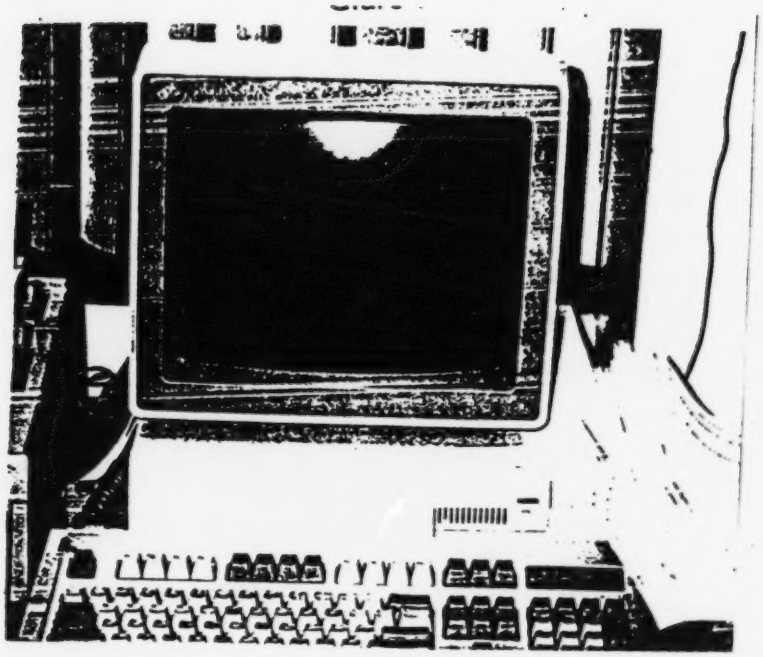
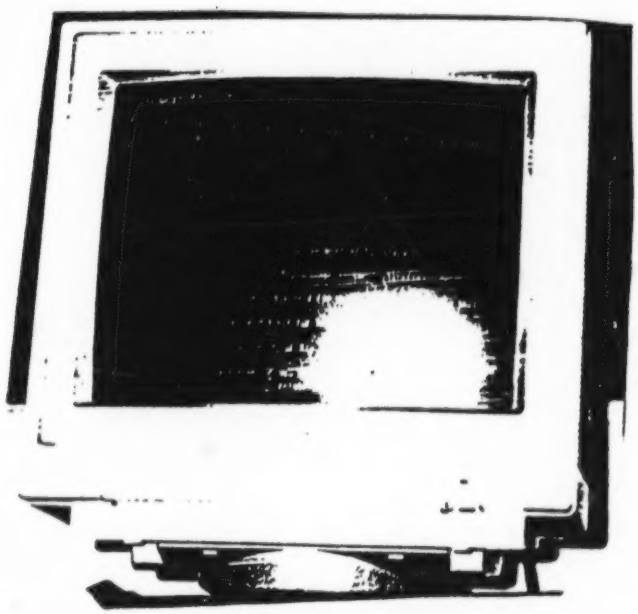


Older trainers need to be able to stop computer scrolling. If preset timed screens are used in training, the older trainees need to be abie to control the length of time they need to read a screen. Older eyes have problems using microfiche machines with screens similar to computer screens, and many have expressed symptoms of nausea, blurred vision, or headaches after spending even one half hour working on a microfiche machine.

GLARE Cataracts are common in individuals over age 60. Individuals with cataracts have difficulty with glare. Outpatient surgery is common to correct this problem, but in the meantime, one bright light source can cause a severe problem in individuals with cataracts.

Sclerosis causes a yellowing and scattering of light and is another problem the elderly have with glare. Glare from computer monitors is a problem. (Figure 9)



COLORS Dark colors are hard for older people to see. When training, the colors most vivid to older persons are red, yellow and orange. Of course, those who are color blind will have difficulty if you use color. Print size should be large and trainers should print when writing on a board or paper. Chalks colored in blues and greens should be avoided, since at age 60, "yellowed lenses filter out some shorter wave lengths of light, making it harder for one to distinguish between blues and greens" (Tierney, p. 11). Yellow chalk is easier to read when glare in involved. If using color to contrast items, use sharp contrasting colors.

HEARING Presbycusis is the loss of hearing tones which occurs later in life. Another auditory loss is our ability to hear volume. Trainers must speak louder when talking with older individuals.

PITCH Older individuals lose their ability to hear high pitched sounds. Women usually have a higher pitched voice than men. Trainers might keep in mind that high-pitched word endings such as **a, t, p, c,** and **g** are hard for the elderly to hear (Peterson, 100).

It is also suggested that trainers always face the audience and use visual clues and body language to assist those who lip read or get clues from your gestures.

AGE An age hearing chart based on the hertz is provided by Tierney (p. 16):

Age 30: Has trouble hearing above 15,000 hertz (a cricket's chirp).

Age 50: Cannot hear above 12,000 hertz (a "silent dog whistle).

Age 60: Cannot hear above 10,000 hertz (upper range of a robin's singing). Also has trouble distinguishing among tones in ranges adults can hear.

Age 70: Cannot hear above 6,000 hertz (high notes on a pipe organ) Misses some words in normal conversation.

It may be useful to obtain feedback from the older persons as to whether or not they are hearing the material you are presenting through appropriate questions or comments.

PHYSICAL LIMITATIONS

HEIGHT As we age, we stop growing taller, and actually grow just a bit shorter, or appear to be shorter due to the hunching forward many of the aging experience. As we age, we also lose the agility we experienced when younger and find it more difficult to stretch and reach. In Figure 11, the woman is standing on tip toes and still can reach only the bottom shelf of the library. Older workers should not be encouraged to stand on chairs or narrow footstools to enable them to reach higher. Such devices are not safe as they can cause a loss of balance.

In Figure 12, the older woman is reaching over large cooking utensils to open the back containers. Notice she is too short to comfortably maneuver these utensils.

DISEASE The arthritic hands in Figure 13 and 14 make it difficult for this woman to operate the cash register. Notice how her finger tips bend left at the joints near her fingernail. The cash register keys are easy to interpret, but also easily touched. Since the keys are close together, the arthritic fingers have problems locating the correct key without sensitizing the keys on each side. This particular woman is 71 years old and has been operating a cash register for approximately 50 years.

MUSCLE Muscle grows weaker as we age; connective tissue replaces fiber, which causes muscle to become stiff. "Strength peaks at about thirty and then steadily diminishes" (Tierney, p. 13). The amount of force that can be exerted by the dominant hand measures muscle performance. Tierney (p. 13) provides this chart for the RIGHT HAND:

Age 30: 99 pounds

Age 40: 97 pounds

Age 50: 92 pounds

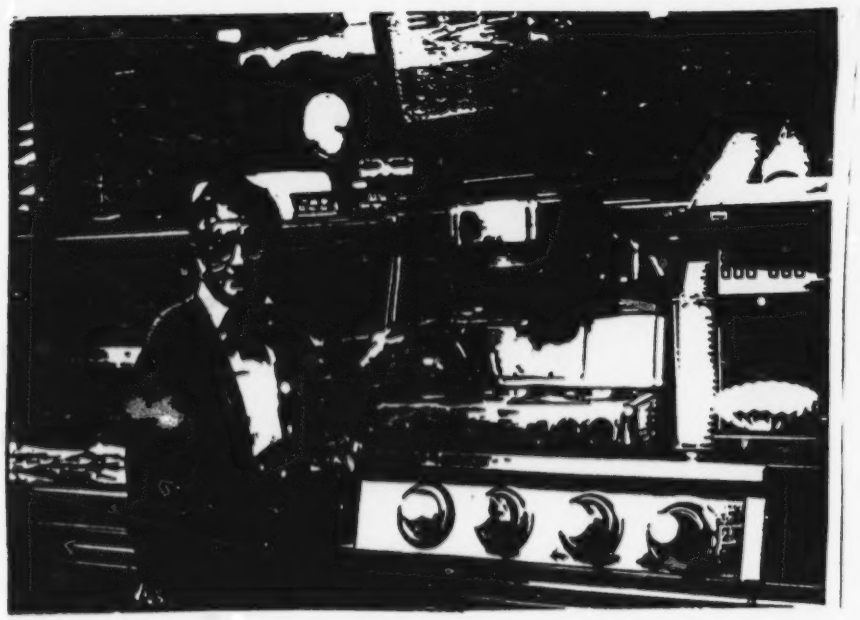
Age 60: 86 pounds

Age 70: 80 pounds

Figure 15 shows an older woman removing an item from window of the boutique shop for a customer to try. She no longer has the muscle strength to manipulate or lift the mannequin in and out of the window, and now relies on help to decorate windows.

Figure 16 is a photo of a member of the McMaster's Program at McDonalds. While completing this study, I worked with her for several days. When the local town crew parked their truck and came in for breakfast, I asked if I could take their order. No, they replied, and asked for this

"good looking" McMaster employee. This was not the only instance where the older worker is preferred by the customer. McDonalds encourages the members of the McMaster Program to visit in the eating areas and offer free coffee refills during their breakfast hours. The elderly are sought, not just because they are better looking, but for their friendly, sincere, personality.



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